

REMARKS/ARGUMENTS

Claims 1-44 were pending in the Application. By this Amendment, new claims 45-50 are being added, to advance the prosecution of the Application. No new matter is involved.

In Paragraph 2 which begins on page 2 of the Office Action, claims 1-4, 8-14, 16-22, 25 and 26 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. 2002/0175887 A1 of Yamazaki. In Paragraph 3 which begins on page 4 of the Office Action, claims 5-7, 15, 23, 24, 27, 29-35 and 37-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki. In Paragraph 4 which begins on page 9 of the Office Action, claims 28 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki and further in view of U.S. Patent 6,057,820 of Irwin. These rejections are respectfully traversed.

In the Examiner's response to Applicants' arguments filed on March 15, 2004, which response is set forth in Paragraph 5 which begins on page 10 of the Office Action, Yamazaki is said to teach two different driving methods for writing data into the partial and non-display regions frame by frame and into each active pixel. One method is MLS, multi-line screening method, in which a group of lines are scanned (Paragraphs 31; 36; 167-168). The group can range from 2-7 lines. The second method is SA, smart addressing method, in which the lines are scanned one by one or it can be construed as a sequential scan method (Paragraphs 31, 188-200). According to the Office Action, these driving methods are shown to write data into selected pixel areas. Thus, the rejection is maintained and is made final.

Although the dependent claims in claims 1-44 do not have a limitation that a switching element is provided in each pixel, the newly presented claims clearly recite that each pixel in a background display area is "selected" and background display data is "written". In Yamazaki, during the partial display mode, the

background display area is "not selected". In the example configuration of Yamazaki, among a total of 200 rows, 40 rows constitute a partial display area and the area of the remaining 160 rows is a "non-display area". Yamazaki fails to even suggest "selection" of a portion of the "non-display area" of 160 rows within one frame and "writing of data" to the selected portion during the partial display mode.

It is clear that the present invention differs from Yamazaki, and Yamazaki fails to even suggest driving of a portion of the "non-display area" along with the partial display area during the partial display mode. Therefore, the present invention is neither anticipated by nor obvious in view of Yamazaki.

It would appear from the comments set forth in the Office Action that the operation of a liquid crystal display device (LCD) in Yamazaki is not completely understood. Referring to the waveform in Fig. 9 of Yamazaki, in this LCD, stripe-shaped X electrodes (column electrodes) are formed on one substrate and Y electrodes (row electrodes) are formed on the other substrate, with a pixel formed in a region where the X electrode and the Y electrode intersect. Regarding a row to be selected (Y electrode), a voltage V_H at an H level is sequentially output to the Y electrode for each row. During this process, in a corresponding X electrode (column), display data V_X is output which is set so that a difference between the voltage V_H which is output to the Y electrode and the voltage V_X to be output to the X electrode becomes a value necessary for the display on the corresponding pixel on the selected Y electrode (row) to be ON (for example, black) or OFF (for example, white). Therefore, in the waveform shown in Fig. 9 in which differences between a center V_C of the data voltage and the voltages V_X and $-V_X$ are identical, it can be generally understood that the pixel at $(Y1, X_n)$ is ON (black display) at the timing when $Y1$ is selected because a voltage of $-V_x$ is applied to the X_n electrode and the pixel at $(Y2, X_n)$ on the same X_n electrode at the timing when the $Y2$ is selected is

OFF (white display) because the polarities of applied voltage to the electrodes are the same.

In Yamazaki, regarding the Y electrodes Y41-Y200 which become a "non-display area" during the partial display mode, no "selection signal" is output. Therefore, regardless of the voltage output to the X electrode, the display data will not be rewritten in this area. In the waveform of Fig. 9, the potential on the Y electrodes Y41-Y200 is fixed at VC and the voltage on the Xn electrode is fixed at VX during a period in which these Y electrodes are selected in the normal display mode. Therefore, the potential on the Y electrodes are not rewritten and the display continues to be OFF.

In the present invention, on the other hand, pixels of a portion of the background display area are actively "selected" and "background display data is written", and thus, the present invention clearly differs from Yamazaki.

Therefore, claims 1-44 are submitted to clearly distinguish patentably over the cited references for these reasons in addition to the reasons set forth in Applicants' prior Amendment of March 15, 2004.

New claims 45-50 are also submitted to clearly distinguish patentably over the cited references. As noted above, new claim 45 which depends from claim 1 recites that "each pixel has a switching element for controlling display in said pixel; and during said partial display mode, a switching element in each pixel of said s row and m column partial display area is operated so that said display data is supplied to a corresponding pixel, and a switching element in each pixel in the area of k rows by m columns corresponding to a portion of the background area is operated so that said background display data is supplied to a corresponding pixel."

New claims 47-49 are worded similarly to new claim 45, but depend from claims 20, 27 and 42 respectively.

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Similarly, new claim 46 which depends from claim 11 recites that "each pixel has a switching element for controlling display in said pixel; and during partial display mode, a switching element in each pixel of said s row by m column partial display area is operated so that said display data is supplied to a corresponding pixel, and a switching element in each pixel in said area of $(s+1)$ rows by m columns and in said area of k rows by m columns corresponding to a portion of the background area is operated so that the background display data is supplied to a corresponding pixel."

New claim 50 reads similarly to new claim 46 but depends from claim 35.

Therefore, new claims 45-50 are submitted to clearly distinguish patentably over the cited references.

In conclusion, claims 1-50 are submitted to clearly distinguish patentably over the prior art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

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If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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